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ABSTRACT

The value of master of agriculture and master of science curricula at Texas A&M University in preparing graduates for careers was assessed. Attitudes of 305 agriculture graduates and 305 science graduates concerning their degrees and the career patterns of graduates were examined. Findings include the following: master of agriculture graduates tended to be more practical and to seek careers in business and industry where their skills could be applied; master of science graduates tended to be more theoretically oriented, often pursuing advanced graduate work and seeking careers in professional areas; master's degree graduates had definite career goals in mind and selected their programs accordingly; graduates were generally well satisfied with their degree program and rated the quality, effectiveness, and benefit of the program highly; graduates felt that courses in business and communications should be a part of a master's program; graduates generally found employment in their field of graduate study or in a closely related field; an internship was a valuable part of a graduate program; and the median starting salaries were $12,117 for all graduates, $12,438 for master of agriculture alumni, and $11,587 for master of science respondents. The follow-up study questionnaire is appended. (SW)

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COMPARING AND CONTRASTING MASTER OF AGRICULTURE AND MASTER OF SCIENCE ALUMNI

W. WADE MILLER

Abstract

Graduates of a professionally oriented master's level program and graduates of the traditional master of science program were compared through the use of a follow-up. Both groups of former students were satisfied with their respective programs. An increase in the number of business related courses was recommended by M. Agr. alumni and an increase in the number of computing science and technical writing courses was recommended by M.S. graduates.

Introduction

The increase of scientific and technological innovations has led to radical changes in this nation's agricultural industry. The number of farms has been decreasing while the size of individual farms has grown. The number of persons engaged in the production of food and fiber has steadily decreased also while the number of people employed in off-farm agricultural business and industry has grown dramatically as the complexity of agriculture has increased.

As off-farm agricultural business and industry has increased in size and scope, the demand for professionals trained in agriculture has expanded. Colleges and universities have been making adjustments to meet this demand. The traditional four-year undergraduate programs have become inadequate for some areas of agriculture as the level of management expertise increased.

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The two master's level graduate programs in the College of Agriculture at Texas A&M University have experienced a large rate of growth in the last ten years. The master of science degree in agriculture has had a four-fold increase in the number of graduates. The master of agriculture degree was restructured in 1969 and has grown steadily since that time.

Both degree programs prepare graduates for careers in agriculture and natural resources, but basic differences exist between them. Historically, the master of science has been a research degree preparing graduates for careers in research or for doctoral programs. The master of agriculture degree was designed to prepare graduates for careers in specific technical and management areas of agriculture and natural resources, with the master of business administration serving as the model for its development.

Questions have been raised about the similarities and differences between the two degree programs since 1969. Some of these questions are: Is there really a difference in the careers selected by the two groups of graduates? Which degree program does the best job of preparing graduates for careers? Which degree program has proved to be the most satisfactory to the graduates? What types of changes would graduates recommend in the curriculum, counseling procedures, and placement services? One way of ascertaining answers to these and other questions is to follow-up the graduates of both programs.

Purpose and Objectives

The primary purpose of this investigation was to determine if changes were warranted in the master of agriculture and master of science curricula at Texas A&M University in preparing graduates for careers. A secondary

purpose was to compare selected factors to determine if one degree seemed to hold greater promise than the other for students undecided about which degree program to select. In order to achieve the foregoing purposes, the following objectives served as guidelines in the acquisition and analysis of data:

1. To determine and compare the attitudes of graduates concerning their respective degrees.
2. To determine and compare the career patterns of the graduates.
3. To develop recommendations for the modification of the curricula of the two degree programs as needed.

Method

The sample for this study consisted of all 305 master of agriculture graduates with known addresses and a random sample of 305 master of science graduates of the College of Agriculture during the period of 1974 through 1978. Graduates without known addresses or with foreign addresses were excluded from the study.

To obtain the information needed to accomplish the purposes and objectives for this study, two questionnaires were developed. The two versions were similar with the exception that the master of agriculture version included questions about the internship.

The questionnaires were mailed to the 610 master's graduates of the College of Agriculture. A follow-up letter was sent to the non-respondents two weeks after the first mailing and a second follow-up letter with duplicate questionnaires was mailed two weeks later. Seven weeks after the initial mailing, completed questionnaires had been received from 432 of the former master's students.

In most cases, data collected were tabulated and placed in frequency tables showing number and percent of the two groups of former master's students by their responses to the items. One-way analysis of variance was used to test the significance of difference between means for continuous variable data in objective one. The means were computed on a five point scale. The chi-square test of independence was used to test the significance of association between both discrete and continuous variable data for objectives two and three. The confidence level was set at .05 in each test for significance.

Results

1. Master of agriculture respondents indicated that "the practicality of the master of agriculture degree program" was the most important factor in their choice of the master of agriculture program rather than the master of science, with a mean rating of 4.23. Two other important factors were "the orientation of the master of agriculture degree program toward careers in non-research areas" and "felt master of agriculture degree was good route to further graduate education" with means of 3.97 and 3.07, respectively.

2. Master of science graduates rated "felt that master of science degree was a good route to further graduate education" as the most important factor in their decision to pursue a master of science degree instead of a master of agriculture, with a mean rating of 4.05. "The orientation of the master of science degree program toward careers in research areas" and "the practicality of the master of science degree" were also rated as important factors, with means of 3.66 and 3.04, respectively.

3. A comparison of selected factors which influenced the selection of a degree program by graduates revealed that "the practicality of the degree

program" was more important to master of agriculture than master of science respondents with means of 4.23 and 3.04, respectively. The factor "felt that degree program was good route to further graduate education" was more important to master of science alumni than it was for master of agriculture graduates with means of 4.05 and 3.07, respectively.

4. More than three-fourths of both groups of graduates indicated that if they could remake their decision regarding graduate study, they would again seek the same degree at Texas A&M University. Slightly more than 8.1 percent said they would seek a master's degree elsewhere and 2.1 percent indicated they would not seek a master's degree. Most of the seventeen respondents, or 4.0 percent, who checked "other" indicated that they would seek a master's degree in business administration.

5. A majority of the graduates, 82.6 percent, felt the quality of their graduate program was good or excellent. Only 5.1 percent thought their graduate program was fair or poor. The chi-square test did not reveal a significant difference between the ratings of the two groups of graduates.

6. Most graduates felt their master's program was effective in preparing them for their first occupational position. A total of 70.5 percent rated it as being good or excellent. Only 6.3 percent indicated that the effectiveness of their graduate program was "poor". A chi-square test revealed no significant difference between the ratings by the two groups of former students.

7. A majority of the respondents, 62.9 percent, felt that their graduate training was of much or great benefit to them in their career whereas only 10.2 percent indicated that their graduate program was of little or no benefit.

The chi-square test did not reveal a significant difference between the responses of the two groups of alumni.

8. A majority of former master of agriculture students, 55.0 percent, indicated that finance courses should either be increased or added to the graduate curriculum. Other course areas receiving large votes for an increase or addition were management with 48.5 percent, computing science with 48.0 percent, accounting with 38.4 percent, technical writing with 37.5 percent, and speech with 32.1 percent.

Most master of science graduates felt that computing science and technical writing courses should be increased or added to the program with percentages of 67.8 and 52.7, respectively. High percentages also recommended the addition or increase of courses in management, 46.9 percent; statistics, 36.1 percent; finance, 32.7 percent; and agricultural economics, 32.2 percent.

9. Almost 92 percent or 207 of the master of agriculture respondents had participated in an internship program and 19 or 8.4 percent had not done so.

The two methods used most often by master of agriculture students to find their internship was through a department arranged interview, 41.4 percent, and finding it as a result of their own efforts, 36.4 percent. The master of agriculture graduates were divided almost equally on whether their internship aided them in securing their first full-time position. Fifty-one percent indicated that it did and 49.0 percent felt it was of no help to them. More than 59 percent of the former master of agriculture students indicated that the internship was of "much" or "great" value to them in their master's program while 14.2 percent felt that it was of "little" or "no" value.

10. More than three-fourths of the former master's students, 76.4 percent, had not started work on any other degree, however, 19.1 percent had begun work on a doctorate. The chi-square test revealed that the graduates' degree was associated with additional graduate study toward a degree. More master of science graduates than expected and less master of agriculture alumni than expected had started work on a doctorate.

More than 90 percent of the graduates had not completed any other additional degree, however 7.3 percent had earned a doctorate. A chi-square test indicated that the graduates' degree was associated with additional degrees earned and that master of science respondents were more likely to earn a doctorate than master of agriculture alumni.

11. Slightly less than 30 percent of the graduates said that they found their first full-time employment through their own efforts. Other prominent methods of locating employment were: "department arranged an interview," 20.8 percent; "through a friend," 14.8 percent; and "had position with same employer before master's degree," 13.8 percent. A chi-square analysis indicated that the two groups of respondents did not use significantly different methods in finding their first full-time employment positions.

12. Almost two-thirds, 65.5 percent, of the respondents indicated they were employed in their field of graduate study or a closely related field. More than 21.4 percent stated that their position was in a field somewhat related and 13.1 percent said their position was unrelated. The chi-square analysis did not reveal a significant association between the graduates' degree and the relationship of their employment to their field of graduate study.

13. The respondents classified their employment position at the time of study most often in the following categories: "professional agricultural

specialist" with 20.8 percent, "non-agricultural or non-natural resources occupation" with 20.6 percent, and "natural resources occupation" with 13.7 percent.

The chi-square analysis revealed a significant association between the graduates' degree and the classification of their position at the time of study. There was an over-representation of master of science alumni in the categories of "attending college or university" and "professional agricultural specialist" and an over-representation of former master of agriculture students in "agri-banking or finance" and "non-agricultural or non-natural resources occupation."

14. The median starting salaries were: $12,117 for all graduates, $12,438 for master of agriculture alumni, and $11,587 for master of science respondents. Almost one-half of the graduates, 48.8 percent, reported starting salaries in the $10,000 to $14,999 range, 29.3 percent indicated below $5,000 to $9,999, and 22.0 percent earned $15,000 to more than $34,000.

The chi-square analysis indicated that there was a significant association between the graduates' degree and the starting salaries received. Master of agriculture alumni tended to receive larger starting salaries. This difference may be due to the large percentage of former master of science students, 20.6 percent, who stayed in college after earning their master's degree.

The median salaries at the time of study were: $18,958 for all former students, $20,347 for master of agriculture respondents, and $17,336 for master of science alumni. A total of 54.3 percent indicated they were earning between $15,000 and $24,999, 28.5 percent indicated from below

$5,000 to $14,999, and 17.2 percent said they earned $25,000 to more than $35,000.

The chi-square analysis revealed a significant association between the graduates' degree and their salaries at the time of study and former master of agriculture students tended to have larger salaries. This may be due to the sizeable percentage, 20.2, of former master of science students who were still in college at the time of study.

Conclusions

To the extent that the data compiled by this study are representative of all master's graduates of the College of Agriculture at Texas A&M University for the years 1974 through 1978, the following conclusions may be drawn:

1. The general hypothesis which states there are differences between the two groups of graduates can be supported only in part. Master of agriculture recipients tend to be more practically minded and seek careers in business and industry where their skills can be applied. Master of science graduates tend to be more theoretically oriented, often pursue advanced graduate work, and seek careers in professional areas.

2. Master's degree graduates have definite career goals in mind and select their degree programs accordingly. They are generally well satisfied with the degree program they selected and rated the quality, effectiveness, and benefit of it highly. However, they feel that courses in business and communications should be a definite part of a master's program.

3. Master's degree recipients generally find employment in their own field of graduate study or in a closely related field. They tend to remain in the same employment categories as they change jobs.

4. An internship is a valuable part of a graduate program. Students should be encouraged to participate in this program.

TEXAS A&M UNIVERSITY
COLLEGE OF AGRICULTURE
COLLEGE STATION, TEXAS 77843

Department of
AGRICULTURAL EDUCATION
VOCATIONAL AGRICULTURE SERVICE

Dear Graduate:

You, as a master's graduate of the College of Agriculture, are one of our most valuable sources of information on how to improve our curricular offerings, counseling procedures, and placement services at Texas A&M University.

Would you help us in our effort by taking a few minutes to complete and return this form. We have enclosed a preaddressed, stamped envelope for that purpose.

Please be assured all information you supply will be held in strict confidence and your name will not be associated with any response. Your identity is coded and the code is available only to the researcher.

We appreciate your cooperation in this important effort. This study will be used to improve the effectiveness of the master's programs in the College of Agriculture.

Sincerely yours,

Earl S. Webb
Professor

W. Wade Miller
W. Wade Miller
Instructor

Code __ __ __ __ __ __ __ __ __ __

TEXAS A&M UNIVERSITY
COLLEGE OF AGRICULTURE
A FOLLOW-UP STUDY: MASTER'S GRADUATES 1974 - 1978

Section 1

In the following questions you are asked to rate the influence that the indicated persons or factors had on certain decisions. Please rate applicable items by circling your choice:

1 = No Influence
2 = Little Influence
3 = Moderate Influence
4 = Strong Influence
5 = Very Strong Influence

	Degree of Influence				
	None	Little	Moderate	Strong	Very Strong
A. Rate the degree of influence each of the following persons or factors had on your decision to earn a master's degree.	1	2	3	4	5
1. Professional colleague	1	2	3	4	5
2. Spouse	1	2	3	4	5
3. Parent(s)	1	2	3	4	5
4. Professor	1	2	3	4	5
5. University counselor	1	2	3	4	5
6. Employer	1	2	3	4	5
7. Friend	1	2	3	4	5
8. Desire for further professional training	1	2	3	4	5
9. Lingering doubts about vocational goals	1	2	3	4	5
10. Inability to find job in area of undergraduate training	1	2	3	4	5
11. Other (specify)_____	1	2	3	4	5
B. Rate the degree of influence each of the following factors had on your decision to pursue a master's degree at Texas A&M University.					
1. Overall prestige of TAMU	1	2	3	4	5
2. Reputation of TAMU faculty in your field	1	2	3	4	5
3. TAMU's agricultural facilities	1	2	3	4	5
4. TAMU's academic standards	1	2	3	4	5
5. Field of interest available only at TAMU	1	2	3	4	5
6. Financial assistance, scholarship, or assistantship	1	2	3	4	5
7. Nearness to home	1	2	3	4	5
8. Other (specify)_____	1	2	3	4	5
C. Rate the degree of influence each of the following had on your decision to pursue a Master of Agriculture rather than a Master of Science degree					
1. The practicality of the M. Agr. degree program	1	2	3	4	5
2. The orientation of the M. Agr. degree program towards careers in non-research areas	1	2	3	4	5
3. The ease of obtaining a job with a M. Agr. degree	1	2	3	4	5
4. Field of interest available only through a M. Agr. degree program	1	2	3	4	5
5. Advice of TAMU faculty member(s)	1	2	3	4	5
6. Advice of TAMU graduate(s)	1	2	3	4	5
7. Felt M. Agr. degree was good route to further graduate education	1	2	3	4	5
8. Opportunity for an internship	1	2	3	4	5
9. Did not want to write a thesis	1	2	3	4	5
10. Other (specify)_____	1	2	3	4	5

The following questions seek your opinions concerning various aspects of your master's program. Please respond by checking one answer to each question.

D. If you could remake your decision regarding graduate study, what would you do?

___1. Seek a M. Agr. degree at TAMU
___2. Seek a M. S. degree with thesis at TAMU
___3. Seek a M. S. degree non-thesis at TAMU
___4. Seek a master's degree elsewhere
___5. Choose not to seek a master's degree
___6. Other (specify)_____

E. In general, what was the quality of your graduate program?

___1. Poor
___2. Fair
___3. Average
___4. Good
___5. Excellent

F. How would you rate the effectiveness of your total master's program as preparation for your first position after receiving your degree?

___1. Poor
___2. Fair
___3. Average
___4. Good
___5. Excellent

G. In general, how much benefit has your graduate training been to you in your career?

___1. No benefit
___2. Little benefit
___3. Moderate benefit
___4. Much benefit
___5. Great benefit

Section 2

What changes, if any, do you believe should be made in the following course areas for others pursuing the same degree you hold?

Considering the courses you took while working on your master's degree,
circle: (1) if you think more hours should be devoted to the course area,
(2) if you think the hours should remain the same,
(3) if you think the hours should be decreased.

On courses that you did not take as a part of your master's degree,
circle: (4) if you think this course area should be added to the degree program,
(5) if you think this course area should not be added to the degree program.

Circle: (6) if you have no opinion.

Course Areas:	DID TAKE: Increase	Remain the Same	Decrease	DID NOT TAKE: Should Add	Should Not Add	No Opinion
	1	2	3	4	5	6
1. Accounting	1	2	3	4	5	6
2. Agricultural Economics	1	2	3	4	5	6
3. Agricultural Education	1	2	3	4	5	6
4. Agricultural Engineering	1	2	3	4	5	6
5. Agronomy	1	2	3	4	5	6
6. Animal Science	1	2	3	4	5	6
7. Biochemistry	1	2	3	4	5	6
8. Chemistry	1	2	3	4	5	6
9. Computing Science	1	2	3	4	5	6
10. Dairy Science	1	2	3	4	5	6
11. Entomology	1	2	3	4	5	6
12. Finance	1	2	3	4	5	6
13. Floriculture	1	2	3	4	5	6
14. Forestry	1	2	3	4	5	6
15. Genetics	1	2	3	4	5	6
16. Horticulture	1	2	3	4	5	6
17. Journalism	1	2	3	4	5	6
18. Management	1	2	3	4	5	6
19. Poultry Science	1	2	3	4	5	6
20. Range Science	1	2	3	4	5	6
21. Recreation and Parks	1	2	3	4	5	6
22. Speech	1	2	3	4	5	6
23. Statistics	1	2	3	4	5	6
24. Technical Writing	1	2	3	4	5	6
25. Veterinary Sciences	1	2	3	4	5	6
26. Wildlife and Fisheries Sciences	1	2	3	4	5	6
27. Other (specify)_____	1	2	3	4	5	6

Section 3

The following questions pertain to your educational and job history. Please respond by checking one answer to each question unless otherwise indicated.

A. Please check any degree on which you have begun work, but have not completed since earning your master's degree at Texas A&M University.

___1. None
___2. Second master's
___3. Doctorate
___4. Other (specify) _____

B. Please check any degree you have completed since earning your master's degree at TAMU.

___1. None
___2. Second master's
___3. Doctorate
___4. Other (specify)_____

C. How did you make contact with your first employer after receiving your master's degree? (check one)

___1. Department arranged interview
___2. University Placement Office
___3. Through a friend
___4. Through a relative
___5. Had position with same employer before master's degree
___6. Through internship
___7. Other (specify)_____

D. How many full-time positions have you had since receiving your master's degree?

___1. None
___2. One
___3. Two
___4. Three
___5. Four or more

E. How many years (nearest whole number) have you worked for your present employer?

___1. One
___2. Two
___3. Three
___4. Four or more

F. What is the name of the company, organization, or individual by which you are employed?

_____

G. Check the statement which most closely applies to your present position.

___1. It is in the field of my graduate study or closely related
___2. It is somewhat related to my field of graduate study
___3. It has little or no relationship to my field of graduate study

H. How would you classify your first and present position after receiving your master's degree? Please check one response in each column.

First Position	Present Position		
____	____	1.	Agricultural Production (farming, ranching, grower, etc.)
____	____	2.	Agricultural Services (sales, technician, etc.)
____	____	3.	Agricultural Communications or Public Relations (radio, magazine, PR consultant, etc.)
____	____	4.	Agribanking or Finance (Production Credit, Federal Land Bank, Ag. Loan Officer, etc.)
____	____	5.	Professional Agricultural Specialist (teacher, extension agent, professor, veterinarian, etc.)
____	____	6.	Natural Resources Occupation (forester, game warden, park director, etc.)
____	____	7.	Non-Agricultural or Natural Resources Occupation
____	____	8.	Attending College or University
____	____	9.	Other (specify)_____

I. Please indicate the annual gross salary range (income before taxes) for your first and present position after receiving your master's degree. This information will be used to compute averages. Please check one response in each column.

First Position	Present Position		
____	____	1.	Below $5,000
____	____	2.	$5,000 to $9,999
____	____	3.	$10,000 to $14,999
____	____	4.	$15,000 to $19,999
____	____	5.	$20,000 to $24,999
____	____	6.	$25,000 to $29,999
____	____	7.	$30,000 to $34,999
____	____	8.	$35,000 or more

J. If a professional paper or report was a requirement for your degree, of what value was it to you?

___1. Of no value
___2. Of little value
___3. Of moderate value
___4. Of much value
___5. Of great value

K. Was an internship a part of your Master of Agriculture program?

___1. Yes
___2. No If you checked "No", please disregard the remaining questions

L. How did you locate your internship position?

___1. Department arranged interview
___2. University Placement Office
___3. Through a friend
___4. Through a relative
___5. Found it for yourself
___6. Other (specify)_____

M. Was your internship and your first full-time position with the same employer?

___1. Yes
___2. No

N. Did your internship aid you in securing your first full-time position?

___1. Yes Comment:_____
___2. No _____

O. What is the name of the company or organization with whom you did your internship?

_____

P. How valuable was your internship as a part of your Master of Agriculture program?

___1. Of no value
___2. Of little value
___3. Of moderate value
___4. Of much value
___5. Of great value

Q. What was your approximate monthly salary during your internship? $_____

R. How many times (approximatley) were you supervised or visited by a representative from TAMU during your internship?

___1. None
___2. Once
___3. Twice
___4. Three times
___5. Other (specify)_____

S. How many times do you think that you should have been supervised or visited by a representative of TAMU during your internship?

____1. None
____2. Once
____3. Twice
____4. Three times
____5. Other (specify)_____

T. How valuable is it to be supervised or visited by a representative of TAMU during the internship?

____1. Of no value
____2. Of little value
____3. Of moderate value
____4. Of much value
____5. Of great value

U. Please provide any other information you wish concerning your master's program:

THANK YOU FOR YOUR COOPERATION

PLEASE RETURN THIS QUESTIONNAIRE TO:

W. Wade Miller, Instructor
Department of Agricultural Education
Texas A&M University
College Station, Texas 77843